10-27-53

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH ADMINISTRATION
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
Division of Forest Insect Investigations

FOREST INSECT SURVEY

SEQUOIA-KINGS CANYON NATIONAL PARK

OCTOBER, 1953 RECONNAISSANCE SURVEY

Introduction

A reconnaissance survey was conducted in the Sequoia-Kings Canyon National Park from October 12 through 15, 1953 by B. E. Wickman of the Forest Insect Laboratory. Areas examined included Cedar Grove in Kings Canyon, General Grant Grove-Redwood Mountain Area and Giant Forest Area, Sequoia National Park. C. F. Johnson and District Rangers of the respective districts gave assistance throughout the survey. Methods of examination were road stripping and topographic spotting.

A special reconnaissance of lodgepole needleminer damage in the upper Woods Creek Drainage was made earlier in the season. An aerial survey of the entire Park was conducted earlier in the month.

Insect and Host Species

Important insects encountered and their host trees are as follows:

Common Name	Scientific Name	Host
Western pine beetle	Dendroctonus brevicomis Lec.	Ponderosa pine
Jeffrey pine beetle	D. jeffreyi Hopk.	Jeffrey pine
Mountain pine beetle	D. monticolae Hopk.	Sugar pine
Pine engravers	Ips spp.	Ponderosa pine
Fir engravers	Scolytus spp.	Red fir and white fir
Lodgepole needleminer	Recurvaria milleri Busck	Lodgepole pine

Status and Scope of Infestation

In the mixed conifer type along the west slopes of the Park, which includes the high-use areas of Cedar Grove, Grant Grove and Giant Forest, low endemic conditions prevail. It is estimated that no more than 140 ponderosa, Jeffrey, and sugar pine are currently infested and will need control. However, at

the time of the survey it was too early to correctly ascertain the total number of ponderosa and Jeffrey pine that were attacked this year. Some of these trees will not start fading until late in November. Red fir and white fir stands in the Park are sustaining damage from a combination of mistletoe and fir engravers. This condition has been observed to be common throughout most of the true fir belt of California this season. Particularly heavy damage was observed in the Giant Forest Area. Lodgepole pine infested with needleminer has been reported in the following areas in the Park: (acreages are approximate)

1. Upper Woods Creek, 700 acres
2. Big Arroyo, 500 acres
3. Forest Creek-Hockett Meadows, 1,000 acres
4. Gallat's Lake, 300 acres

These infestations might cause widespread lodgepole pine mortality in their respective areas, either as a direct result of defoliation or indirectly through build-up of mountain pine beetle populations in trees weakened by defoliation. Moth populations of the lodgepole needleminer were very high in the Woods Creek area, and defoliation was quite extensive.

Values Threatened and Recommended Action

Recreational use of immeasurable value justifies special consideration in the control of forest insects in a National Park. With this in mind, the following direct control recommendations are made:

1. Pine bark beetles - Fell-peel-burn control for pine bark beetles has long been the standby in the region and continuation of this method of control in most cases is recommended. In addition, an aggressive salvage logging program has been used extensively in this National Park and should be continued as a supplement to fell-peel-burn whenever possible. Correctly carried on, this process gives control benefits equal to fell-peel-burn with greatly reduced costs. Consideration might be given to the use of toxic oil sprays applied to the outside of peeled bark in cases in which the infested trees are too far from roads for salvage logging and high fire hazard makes fell-peel-burn hazardous to use. Broods of Jeffrey pine beetle and mountain pine beetle which lie in the inner bark can undoubtedly be controlled by direct application of toxic oil sprays with a stirrup pump. Broods of western pine beetle, in spite of their protected position in the outer bark, can be successfully controlled by large dosages, inasmuch as spray has been found to penetrate well into the bark crevices and larval mines. It would be desirable to have a Bureau representative on hand if this technique is employed.

2. Fir engravers - General control of the fir engraver beetles, because of the scattered nature of the infestation and doubtful value of control methods, is not recommended.

3. Lodgepole pine needleminer - Although the areas infested are of high recreational value, control would be difficult because of the small acreage involved and the extremely rugged terrain. However, a very close watch should be kept on these areas to note any spreading of the infestation or any evidence of mountain pine beetle build-up in the defoliated trees.

Discussion

Inasmuch as bark-beetle loss in the Park at present is at what appears to be practically an irreducible minimum, benefits of maintenance control as recommended cannot be expected to be noticeably lasting, but they should minimize the possibility of the return of epidemic conditions. Sugar pine loss in mature stands appears to be somewhat higher than usual; however, as stated before, the extent of 1953 loss in all pine species cannot be correctly determined at this time.

B. E. Wickman, Supervisory
Control Aid

Forest Insect Laboratory
Berkeley, California
October 27, 1953